

SEQUENCE LISTING

<110> VLAAMS INTERUNIVERSITAIR INSTITUUT VOOR BIOTECHNOL

<120> NOVEL INHIBITORS OF NF-kappaB ACTIVATION

<130> 2676-4554US

<140> 09/702,953

<141> 2000-10-31

<150> PCT/BE99/00055

<151> 1999-05-05

<150> US 09/702,953

<151> 2000-10-31

<150> 98201472.2

<151> 1998-05-06

<160> 19

<170> PatentIn version 3.2

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						1	
gaa ggg aga gga ccc tac cgg atc tac gac cca ggg ggc agc acg cct						167	
Glu Gly Arg Gly Pro Tyr Arg Ile Tyr Asp Pro Gly Gly Ser Thr Pro							
5	10	15					
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Leu Gly Glu Val Ser Ala Ala Phe Glu Arg Leu Val Glu Glu Asn Thr							
20	25	30					
cggtcg aag gga aaa atg caa ggg ata aag atg tta ggg gag ctt ctg						263	
Arg Leu Lys Gly Lys Met Gln Gly Ile Lys Met Leu Gly Glu Leu Leu							
35	40	45					
gag gag tct cag atg gaa gcg tcc aga ctc cgg cag aag gca gag gag						311	
Glu Glu Ser Gln Met Glu Ala Ser Arg Leu Arg Gln Lys Ala Glu Glu							
50	55	60	65				
ctg gtc aag gac agc gag ctg tca cca ccg aca tct gcc ccc tcc ttg						359	
Leu Val Lys Asp Ser Glu Leu Ser Pro Pro Thr Ser Ala Pro Ser Leu							
70	75	80					
gtc tcc ttt gat gac ctg gct gag ctc aca gga cag gat aca aag gtc						407	
Val Ser Phe Asp Asp Leu Ala Glu Leu Thr Gly Gln Asp Thr Lys Val							
85	90	95					
cag gta cat cct gct acc agc act gcc gcc acc acc acc acc acc gcc						455	
Gln Val His Pro Ala Thr Ser Thr Ala Ala Thr Thr Ala Thr Ala							
100	105	110					
acc acg gga aac tcc atg gag aag ccc gag cca gcc tcc aaa tct ccg						503	
Thr Thr Gly Asn Ser Met Glu Lys Pro Glu Pro Ala Ser Lys Ser Pro							
115	120	125					
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Ser Asn Gly Ala Ser Ser Asp Phe Glu Val Val Pro Thr Glu Glu Gln							
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aat tca ccc gaa act ggc agc cac cct acg aac atg atg gac ctg ggg			599
Asn Ser Pro Glu Thr Gly Ser His Pro Thr Asn Met Met Asp Leu Gly			
150	155	160	
ccc cca ccc cca gag gac agc aac ctg aag ctc cac ctg cag cgc ctg			647
Pro Pro Pro Pro Glu Asp Ser Asn Leu Lys Leu His Leu Gln Arg Leu			
165	170	175	
gag acc acc ctt agc gtg tgt gca gag gag cca gac cac agc cag ctc			695
Glu Thr Thr Leu Ser Val Cys Ala Glu Glu Pro Asp His Ser Gln Leu			
180	185	190	
ttc acc cac ctg ggc cgc atg gcc ctc gag ttc aac agg ttg gcc tcc			743
Phe Thr His Leu Gly Arg Met Ala Leu Glu Phe Asn Arg Leu Ala Ser			
195	200	205	
aaa gtg cat aaa aat gag cag cgc acc tcc atc ctg cag acc tta tgt			791
Lys Val His Lys Asn Glu Gln Arg Thr Ser Ile Leu Gln Thr Leu Cys			
210	215	220	225
gag cag ctg cgc cag gag aat gaa gcc ctg aag gcc aag ctg gac aag			839
Glu Gln Leu Arg Gln Glu Asn Glu Ala Leu Lys Ala Lys Leu Asp Lys			
230	235	240	
ggc ctg gaa cag cgg gat ctg gct gag agg ctg cgg gag gaa aac			887
Gly Leu Glu Gln Arg Asp Leu Ala Ala Glu Arg Leu Arg Glu Glu Asn			
245	250	255	
acg gag ctc aag aaa ctg ttg atg aac agc agc tgc aaa gag gga ctc			935
Thr Glu Leu Lys Lys Leu Leu Met Asn Ser Ser Cys Lys Glu Gly Leu			
260	265	270	
tgt ggg cag ccc agc tcc cca aag cca gag ggt gct ggc aag aag ggc			983
Cys Gly Gln Pro Ser Ser Pro Lys Pro Glu Gly Ala Gly Lys Lys Gly			
275	280	285	
gtg gct gga cag cag cag gcc agt gtg atg gcg agt aaa gtc cct gaa			1031
Val Ala Gly Gln Gln Ala Ser Val Met Ala Ser Lys Val Pro Glu			
290	295	300	305

gcg ggg gcc ttt gga gca gct gag aag aaa gtg aag ttg cta gaa cag Ala Gly Ala Phe Gly Ala Ala Glu Lys Lys Val Lys Leu Leu Glu Gln	310	315	320	1079	
caa cgc atg gag ctg ctg gaa gtg aac aag cag tgg gac cag cat ttc Gln Arg Met Glu Leu Leu Glu Val Asn Lys Gln Trp Asp Gln His Phe	325	330	335	1127	
cgg tcc atg aag cag cag tat gag cag aag atc aca gag ctt cgc cag Arg Ser Met Lys Gln Gln Tyr Glu Gln Lys Ile Thr Glu Leu Arg Gln	340	345	350	1175	
aag ctg gtg gac ctg cag aaa cag gta act gag ctg gag gcc gaa cgg Lys Leu Val Asp Leu Gln Lys Gln Val Thr Glu Leu Glu Ala Glu Arg	355	360	365	1223	
gag cag aag cag cgt gac ttt gac cgq aaa ctc ctc ctg gcc aaa tcg Glu Gln Lys Gln Arg Asp Phe Asp Arg Lys Leu Leu Ala Lys Ser	370	375	380	385	1271
aag ata gag atg gaa gag acc gac aag gag cag ctg aca gca gag gcc Lys Ile Glu Met Glu Glu Thr Asp Lys Glu Gln Leu Thr Ala Glu Ala	390	395	400	1319	
aag gaa ctg cgc cag aag gtc agg tac cta cag gat cag ctg agc ccg Lys Glu Leu Arg Gln Lys Val Arg Tyr Leu Gln Asp Gln Leu Ser Pro	405	410	415	1367	
ctc aca agg caa cga gaa tac cag gag aag gag atc cag cgq ctc aat Leu Thr Arg Gln Arg Glu Tyr Gln Glu Lys Glu Ile Gln Arg Leu Asn	420	425	430	1415	
aag gcc ctg gag gag gcc ctc agc atc cag gcc tct cca tca tct ccg Lys Ala Leu Glu Glu Ala Leu Ser Ile Gln Ala Ser Pro Ser Ser Pro	435	440	445	1463	
cct gca gct ttt ggg agt cca gaa ggc gtt ggg ggc cat ctg agg aag Pro Ala Ala Phe Gly Ser Pro Glu Gly Val Gly His Leu Arg Lys	450	455	460	465	1511

cag gaa cta gtg aca cag aat gag ttg ctg aaa cag cag gta aag atc Gln Glu Leu Val Thr Gln Asn Glu Leu Leu Lys Gln Gln Val Lys Ile	470	475	480	1559
ttt gaa gag gac ttc cag agg gaa cg ^g agt gac cgt gaa cgc atg aat Phe Glu Glu Asp Phe Gln Arg Glu Arg Ser Asp Arg Glu Arg Met Asn	485	490	495	1607
gaa gag aag gag gag ctg aag aag caa gta gag aag ctg cag gcc cag Glu Glu Lys Glu Leu Lys Lys Gln Val Glu Lys Leu Gln Ala Gln	500	505	510	1655
gtc acc ctg act aat gcc cag ctc aaa act ctc aaa gag gag gag aag Val Thr Leu Thr Asn Ala Gln Leu Lys Thr Leu Lys Glu Glu Glu Lys	515	520	525	1703
gcc aag gaa gcc ctc aaa cag cag aag agg aaa gca aag gct tcg gga Ala Lys Glu Ala Leu Lys Gln Gln Lys Arg Lys Ala Lys Ala Ser Gly	530	535	540	545
gag cg ^c tac cac atg gaa ccc cac cct gag cac gtc tgc ggc gcc tat Glu Arg Tyr His Met Glu Pro His Pro Glu His Val Cys Gly Ala Tyr	550	555	560	1799
ccc tat gcc tac cca ccc atg cca gcc atg gta cct cac cat gcc tac Pro Tyr Ala Tyr Pro Pro Met Pro Ala Met Val Pro His His Ala Tyr	565	570	575	1847
aag gac tgg tcc cag atc cga tac cct cca ccc cct gtg ccc atg gag Lys Asp Trp Ser Gln Ile Arg Tyr Pro Pro Pro Val Pro Met Glu	580	585	590	1895
cac ccg ccc cca cac ccc aac tct cgc ctc ttc cat ctg ccg gag tac His Pro Pro Pro His Pro Asn Ser Arg Leu Phe His Leu Pro Glu Tyr	595	600	605	1943
acc tgg cgt cca ccc tgt gca ggg att cg ^g aat cag agc tct caa gtg Thr Trp Arg Pro Pro Cys Ala Gly Ile Arg Asn Gln Ser Ser Gln Val	610	615	620	625

atg gac ccg ccc cca gac agg cct gca gag cca gag tct gca gac aat	2039	
Met Asp Pro Pro Pro Asp Arg Pro Ala Glu Pro Glu Ser Ala Asp Asn		
630	635	640
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Asp Cys Asp Gly Pro Gln		
645		
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Thr Arg Leu Lys Gly Lys Met Gln Gly Ile Lys Met Leu Gly Glu Leu
35 40 45

Leu Glu Glu Ser Gln Met Glu Ala Ser Arg Leu Arg Gln Lys Ala Glu
50 55 60

Glu Leu Val Lys Asp Ser Glu Leu Ser Pro Pro Thr Ser Ala Pro Ser
65 70 75 80

Leu Val Ser Phe Asp Asp Leu Ala Glu Leu Thr Gly Gln Asp Thr Lys
85 90 95

Val Gln Val His Pro Ala Thr Ser Thr Ala Ala Thr Thr Thr Ala Thr
100 105 110

Ala Thr Thr Gly Asn Ser Met Glu Lys Pro Glu Pro Ala Ser Lys Ser
115 120 125

Pro Ser Asn Gly Ala Ser Ser Asp Phe Glu Val Val Pro Thr Glu Glu
130 135 140

Gln Asn Ser Pro Glu Thr Gly Ser His Pro Thr Asn Met Met Asp Leu

145

150

155

160

Gly Pro Pro Pro Pro Glu Asp Ser Asn Leu Lys Leu His Leu Gln Arg
165 170 175

Leu Glu Thr Thr Leu Ser Val Cys Ala Glu Glu Pro Asp His Ser Gln
180 185 190

Leu Phe Thr His Leu Gly Arg Met Ala Leu Glu Phe Asn Arg Leu Ala
195 200 205

Ser Lys Val His Lys Asn Glu Gln Arg Thr Ser Ile Leu Gln Thr Leu
210 215 220

Cys Glu Gln Leu Arg Gln Glu Asn Glu Ala Leu Lys Ala Lys Leu Asp
225 230 235 240

Lys Gly Leu Glu Gln Arg Asp Leu Ala Ala Glu Arg Leu Arg Glu Glu
245 250 255

Asn Thr Glu Leu Lys Lys Leu Leu Met Asn Ser Ser Cys Lys Glu Gly
260 265 270

Leu Cys Gly Gln Pro Ser Ser Pro Lys Pro Glu Gly Ala Gly Lys Lys
275 280 285

Gly Val Ala Gly Gln Gln Ala Ser Val Met Ala Ser Lys Val Pro
290 295 300

Glu Ala Gly Ala Phe Gly Ala Ala Glu Lys Lys Val Lys Leu Leu Glu

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310

315

320

Gln Gln Arg Met Glu Leu Leu Glu Val Asn Lys Gln Trp Asp Gln His
325 330 335

Phe Arg Ser Met Lys Gln Gln Tyr Glu Gln Lys Ile Thr Glu Leu Arg
340 345 350

Gln Lys Leu Val Asp Leu Gln Lys Gln Val Thr Glu Leu Glu Ala Glu
355 360 365

Arg Glu Gln Lys Gln Arg Asp Phe Asp Arg Lys Leu Leu Leu Ala Lys
370 375 380

Ser Lys Ile Glu Met Glu Glu Thr Asp Lys Glu Gln Leu Thr Ala Glu
385 390 395 400

Ala Lys Glu Leu Arg Gln Lys Val Arg Tyr Leu Gln Asp Gln Leu Ser
405 410 415

Pro Leu Thr Arg Gln Arg Glu Tyr Gln Glu Lys Glu Ile Gln Arg Leu
420 425 430

Asn Lys Ala Leu Glu Glu Ala Leu Ser Ile Gln Ala Ser Pro Ser Ser
435 440 445

Pro Pro Ala Ala Phe Gly Ser Pro Glu Gly Val Gly Gly His Leu Arg
450 455 460

Lys Gln Glu Leu Val Thr Gln Asn Glu Leu Leu Lys Gln Gln Val Lys

465

470

475

480

Ile Phe Glu Glu Asp Phe Gln Arg Glu Arg Ser Asp Arg Glu Arg Met
485 490 495

Asn Glu Glu Lys Glu Glu Leu Lys Lys Gln Val Glu Lys Leu Gln Ala
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515 520 525

Lys Ala Lys Glu Ala Leu Lys Gln Gln Lys Arg Lys Ala Lys Ala Ser
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Tyr Pro Tyr Ala Tyr Pro Pro Met Pro Ala Met Val Pro His His Ala
565 570 575

Tyr Lys Asp Trp Ser Gln Ile Arg Tyr Pro Pro Pro Val Pro Met
580 585 590

Glu His Pro Pro Pro His Pro Asn Ser Arg Leu Phe His Leu Pro Glu
595 600 605

Tyr Thr Trp Arg Pro Pro Cys Ala Gly Ile Arg Asn Gln Ser Ser Gln
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Val Met Asp Pro Pro Pro Asp Arg Pro Ala Glu Pro Glu Ser Ala Asp

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Asn Asp Cys Asp Gly Pro Gln

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35 40 45

Asp Ser Glu Leu Ser Pro Pro Thr Ser Ala Pro Ser Leu Val Ser Phe
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Asp Asp Leu Ala Glu Leu Thr Gly Gln Asp Thr Lys Val Gln Val His
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Pro Ala Thr Ser Thr Ala Ala Thr Thr Ala Thr Ala Thr Thr Gly
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Asn Ser Met Glu Lys Pro Glu Pro Ala Ser Lys Ser Pro Ser Asn Gly
100 105 110

Ala Ser Ser Asp Phe Glu Val Val Pro Thr Glu Glu Gln Asn Ser Pro
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Glu Thr Gly Ser His Pro Thr Asn Met Met Asp Leu Gly Pro Pro Pro
130 135 140

Pro Glu Asp Ser Asn Leu Lys Leu His Leu Gln Arg Leu Glu Thr Thr
145 150 155 160

Leu Ser Val Cys Ala Glu Glu Pro Asp His Ser Gln Leu Phe Thr His
165 170 175

Leu Gly Arg Met Ala Leu Glu Phe Asn Arg Leu Ala Ser Lys Val His
180 185 190

Lys Asn Glu Gln Arg Thr Ser Ile Leu Gln Thr Leu Cys Glu Gln Leu
195 200 205

Arg Gln Glu Asn Glu Ala Leu Lys Ala Lys Leu Asp Lys Gly Leu Glu
210 215 220

Gln Arg Asp Leu Ala Ala Glu Arg Leu Arg Glu Glu Asn Thr Glu Leu
225 230 235 240

Lys Lys Leu Leu Met Asn Ser Ser Cys Lys Glu Gly Leu Cys Gly Gln
245 250 255

Pro Ser Ser Pro Lys Pro Glu Gly Ala Gly Lys Lys Gly Val Ala Gly
260 265 270

Gln Gln Gln Ala Ser Val Met Ala Ser Lys Val Pro Glu Ala Gly Ala
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Phe Gly Ala Ala Glu Lys Lys Val Lys Leu Leu Glu Gln Gln Arg Met
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Asp Leu Gln Lys Gln Val Thr Glu Leu Glu Ala Glu Arg Glu Gln Lys
340 345 350

Gln Arg Asp Phe Asp Arg Lys Leu Leu Leu Ala Lys Ser Lys Ile Glu
355 360 365

Met Glu Glu Thr Asp Lys Glu Gln Leu Thr Ala Glu Ala Lys Glu Leu
370 375 380

Arg Gln Lys Val Arg Tyr Leu Gln Asp Gln Leu Ser Pro Leu Thr Arg
385 390 395 400

Gln Arg Glu Tyr Gln Glu Lys Glu Ile Gln Arg Leu Asn Lys Ala Leu
405 410 415

Glu Glu Ala Leu Ser Ile Gln Ala Ser Pro Ser Ser Pro Pro Ala Ala
420 425 430

Phe Gly Ser Pro Glu Gly Val Gly Gly His Leu Arg Lys Gln Glu Leu
435 440 445

Val Thr Gln Asn Glu Leu Leu Lys Gln Gln Val Lys Ile Phe Glu Glu
450 455 460

Asp Phe Gln Arg Glu Arg Ser Asp Arg Glu Arg Met Asn Glu Glu Lys
465 470 475 480

Glu Glu Leu Lys Lys Gln Val Glu Lys Leu Gln Ala Gln Val Thr Leu
485 490 495

Thr Asn Ala Gln Leu Lys Thr Leu Lys Glu Glu Glu Lys Ala Lys Glu
500 505 510

Ala Leu Lys Gln Gln Lys Arg Lys Ala Lys Ala Ser Gly Glu Arg Tyr
515 520 525

His Met Glu Pro His Pro Glu His Val Cys Gly Ala Tyr Pro Tyr Ala
530 535 540

Tyr Pro Pro Met Pro Ala Met Val Pro His His Ala Tyr Lys Asp Trp
545 550 555 560

Ser Gln Ile Arg Tyr Pro Pro Pro Pro Val Pro Met Glu His Pro Pro
565 570 575

Pro His Pro Asn Ser Arg Leu Phe His Leu Pro Glu Tyr Thr Trp Arg
580 585 590

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Gly Pro Gln
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35 40 45

Pro Glu Pro Ala Ser Lys Ser Pro Ser Asn Gly Ala Ser Ser Asp Phe
50 55 60

Glu Val Val Pro Thr Glu Glu Gln Asn Ser Pro Glu Thr Gly Ser His
65 70 75 80

Pro Thr Asn Met Met Asp Leu Gly Pro Pro Pro Pro Glu Asp Ser Asn
85 90 95

Leu Lys Leu His Leu Gln Arg Leu Glu Thr Thr Leu Ser Val Cys Ala
100 105 110

Glu Glu Pro Asp His Ser Gln Leu Phe Thr His Leu Gly Arg Met Ala
115 120 125

Leu Glu Phe Asn Arg Leu Ala Ser Lys Val His Lys Asn Glu Gln Arg
130 135 140

Thr Ser Ile Leu Gln Thr Leu Cys Glu Gln Leu Arg Gln Glu Asn Glu
145 150 155 160

Ala Leu Lys Ala Lys Leu Asp Lys Gly Leu Glu Gln Arg Asp Leu Ala
165 170 175

Ala Glu Arg Leu Arg Glu Glu Asn Thr Glu Leu Lys Lys Leu Leu Met
180 185 190

Asn Ser Ser Cys Lys Glu Gly Leu Cys Gly Gln Pro Ser Ser Pro Lys
195 200 205

Pro Glu Gly Ala Gly Lys Lys Gly Val Ala Gly Gln Gln Gln Ala Ser
210 215 220

Val Met Ala Ser Lys Val Pro Glu Ala Gly Ala Phe Gly Ala Ala Glu
225 230 235 240

Lys Lys Val Lys Leu Leu Glu Gln Gln Arg Met Glu Leu Leu Glu Val
245 250 255

Asn Lys Gln Trp Asp Gln His Phe Arg Ser Met Lys Gln Gln Tyr Glu
260 265 270

Gln Lys Ile Thr Glu Leu Arg Gln Lys Leu Val Asp Leu Gln Lys Gln
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Val Thr Glu Leu Glu Ala Glu Arg Glu Gln Lys Gln Arg Asp Phe Asp
290 295 300

Arg Lys Leu Leu Leu Ala Lys Ser Lys Ile Glu Met Glu Glu Thr Asp
305 310 315 320

Lys Glu Gln Leu Thr Ala Glu Ala Lys Glu Leu Arg Gln Lys Val Arg
325 330 335

Tyr Leu Gln Asp Gln Leu Ser Pro Leu Thr Arg Gln Arg Glu Tyr Gln
340 345 350

Glu Lys Glu Ile Gln Arg Leu Asn Lys Ala Leu Glu Glu Ala Leu Ser
355 360 365

Ile Gln Ala Ser Pro Ser Ser Pro Pro Ala Ala Phe Gly Ser Pro Glu
370 375 380

Gly Val Gly Gly His Leu Arg Lys Gln Glu Leu Val Thr Gln Asn Glu
385 390 395 400

Leu Leu Lys Gln Gln Val Lys Ile Phe Glu Glu Asp Phe Gln Arg Glu
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Arg Ser Asp Arg Glu Arg Met Asn Glu Glu Lys Glu Glu Leu Lys Lys
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Gln Val Glu Lys Leu Gln Ala Gln Val Thr Leu Thr Asn Ala Gln Leu
435 440 445

Lys Thr Leu Lys Glu Glu Glu Lys Ala Lys Glu Ala Leu Lys Gln Gln
450 455 460

Lys Arg Lys Ala Lys Ala Ser Gly Glu Arg Tyr His Met Glu Pro His
465 470 475 480

Pro Glu His Val Cys Gly Ala Tyr Pro Tyr Ala Tyr Pro Pro Met Pro
485 490 495

Ala Met Val Pro His His Ala Tyr Lys Asp Trp Ser Gln Ile Arg Tyr
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Pro Pro Pro Pro Val Pro Met Glu His Pro Pro Pro His Pro Asn Ser
515 520 525

Arg Leu Phe His Leu Pro Glu Tyr Thr Trp Arg Pro Pro Cys Ala Gly
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Met Ser Ser Gly Asp Pro Arg Ser Gly Arg

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cag gac ggg gcc ccg cgt gcg gcc gca gcg ctc tgt ggc ctg tac cac 160

Gln Asp Gly Ala Pro Arg Ala Ala Ala Leu Cys Gly Leu Tyr His

15 20 25

gag gcc ggc cag caa cta cag cgc ctg aag gat cag ctg gcc gcg cgt 208

Glu Ala Gly Gln Leu Gln Arg Leu Lys Asp Gln Leu Ala Ala Arg

30 35 40

gac gcc ctc atc gcg agc ctc cgc acc cgc ctc gcg gct ctg gaa ggg 256

Asp Ala Leu Ile Ala Ser Leu Arg Thr Arg Leu Ala Ala Leu Glu Gly

45 50 55

cac acg gcg ccg tca ctc gtg gac gca ctt ctg gat cag gtg gag cgc 304

His Thr Ala Pro Ser Leu Val Asp Ala Leu Leu Asp Gln Val Glu Arg

60 65 70

ttc cgt gag cag ctg cga cga cag gag gaa ggc gct tcg gag acc cag 352

Phe Arg Glu Gln Leu Arg Arg Gln Glu Glu Gly Ala Ser Glu Thr Gln

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110				115	120
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125				130	135
gcc	gcc	agt	gat	gtt ctg tgc cgc tcc ttg gct gat gag acc cac caa Ala Ala Ser Asp Val Leu Cys Arg Ser Leu Ala Asp Glu Thr His Gln	544
140				145	150
ctg	cgc	agg	aca	ttg gca gcc act gcc cac atg tgc caa cat ctg gcc Leu Arg Arg Thr Leu Ala Ala Thr Ala His Met Cys Gln His Leu Ala	592
155				160	165
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175				180	185
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235	240	245	250	
gtc cct ctg gag cct gag ctg atg aag aag gag att tcc cga ctt aac				880
Val	Pro	Leu	Glu	Pro Glu Leu Met Lys Lys Glu Ile Ser Arg Leu Asn
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aga cag ttg gag gag aaa ata agt gac tgt gcg gaa gca aac cag gag				928
Arg	Gln	Leu	Glu	Glu Lys Ile Ser Asp Cys Ala Glu Ala Asn Gln Glu
270	275	280		
ctg aca gcc atg agg atg tcc cgg gac act gcg ctg gag cga gtg cag				976
Leu	Thr	Ala	Met	Arg Met Ser Arg Asp Thr Ala Leu Glu Arg Val Gln
285	290	295		
atg cta gaa cag cag att ctt gct tac aag gat gac ttc aaa tca gaa				1024
Met	Leu	Glu	Gln	Ile Leu Ala Tyr Lys Asp Asp Phe Lys Ser Glu
300	305	310		
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Arg	Ala	Asp	Arg	Glu Arg Ala His Ser Arg Ile Gln Glu Leu Glu Glu
315	320	325	330	
aag atc atg tcc ttg atg tac caa gtg tcc cag aga cag gac tcc cgg				1120
Lys	Ile	Met	Ser	Leu Met Tyr Gln Val Ser Gln Arg Gln Asp Ser Arg
335	340	345		
gag cca gga ccc tgt cgg att cat acg ggg aac aaa act gcc aag tac				1168
Glu	Pro	Gly	Pro	Cys Arg Ile His Thr Gly Asn Lys Thr Ala Lys Tyr
350	355	360		
tta gag atg gat gca ctg gag cat gtg acc cct ggc ggc tgg agg cct				1216
Leu	Glu	Met	Asp	Ala Leu Glu His Val Thr Pro Gly Gly Trp Arg Pro
365	370	375		
gag tct agg tcc caa cag atg gaa cct tct gca gag ggt ggg cat gtg				1264
Glu	Ser	Arg	Ser	Gln Gln Met Glu Pro Ser Ala Glu Gly Gly His Val
380	385	390		
tgc aca gcc cag aga ggt cag ggt gac ctt cag tgc cct cat tgc ctg				1312
Cys	Thr	Ala	Gln	Arg Gly Gln Gly Asp Leu Gln Cys Pro His Cys Leu

395	400	405	410	
cggtgc ttc agt gat gag caa ggc gag gca ttc ctc agg cac ctg tct				1360
Arg Cys Phe Ser Asp Glu Gln Gly Glu Ala Phe Leu Arg His Leu Ser				
415	420	425		
gagtgc tgc caa tga gccagacatt gcccgtgtga cccatgacca ccatacgctgc				1415
Glu Cys Cys Gln				
430				
tctaaggac tgggaggggt cctcagactc agtttcaac tcagtgtgtt gcattctcct				1475
gggatctagg gcccaaatgg gcagggtcac tgaaaggtca tcttgtttc atttgaccat				1535
ggtgagactt ggtcagaggg aactattgac agagcaggag gaagagggtg gggtcaggga				1595
catcaagtgg acatcagttt tgtctcacgt agagtttggaa gtgagctgtc aattcaaagc				1655
tgcaagctat cagttgtggg aatattctga agcctgcttg caccttagagt tatgccactt				1715
gctggaaggg gaagttgctg tgggagcagt gtgtcccttt tctagggtgg tagtccatc				1775
ctgttgagta gtgagataca ctccctgact ggtctgtgct gcattacagt tacatgatac				1835
actagaacct tcccaaactc agcagagcca cacagctgca tccagttacca tcaccctgca				1895
aaacacttgt atttccaaaa gggaaagcac ctttatttcc taatcattta tttttataat				1955
aaatggcttt ac				1967

<210> 6
 <211> 430
 <212> PRT
 <213> Mus musculus

<400> 6

Met	Ser	Ser	Gly	Asp	Pro	Arg	Ser	Gly	Arg	Gln	Asp	Gly	Ala	Pro	Arg
1															
				5				10						15	

Ala Ala Ala Ala Leu Cys Gly Leu Tyr His Glu Ala Gly Gln Gln Leu
20 25 30

Gln Arg Leu Lys Asp Gln Leu Ala Ala Arg Asp Ala Leu Ile Ala Ser
35 40 45

Leu Arg Thr Arg Leu Ala Ala Leu Glu Gly His Thr Ala Pro Ser Leu
50 55 60

Val Asp Ala Leu Leu Asp Gln Val Glu Arg Phe Arg Glu Gln Leu Arg
65 70 75 80

Arg Gln Glu Glu Gly Ala Ser Glu Thr Gln Leu Arg Gln Glu Val Glu
85 90 95

Arg Leu Thr Glu Arg Leu Glu Glu Lys Glu Arg Glu Met Gln Gln Leu
100 105 110

Met Ser Gln Pro Gln His Glu Gln Glu Lys Glu Val Val Leu Leu Arg
115 120 125

Arg Ser Val Ala Glu Lys Glu Lys Ala Arg Ala Ala Ser Asp Val Leu
130 135 140

Cys Arg Ser Leu Ala Asp Glu Thr His Gln Leu Arg Arg Thr Leu Ala
145 150 155 160

Ala Thr Ala His Met Cys Gln His Leu Ala Lys Cys Leu Asp Glu Arg
165 170 175

Gln Cys Ala Gln Gly Asp Ala Gly Glu Lys Ser Pro Ala Glu Leu Glu
180 185 190

Gln Thr Ser Ser Asp Ala Ser Gly Gln Ser Val Ile Lys Lys Leu Gln
195 200 205

Glu Glu Asn Arg Leu Leu Lys Gln Lys Val Thr His Val Glu Asp Leu
210 215 220

Asn Ala Lys Trp Gln Arg Tyr Asp Ala Ser Arg Asp Glu Tyr Val Lys
225 230 235 240

Gly Leu His Ala Gln Leu Lys Arg Arg Gln Val Pro Leu Glu Pro Glu
245 250 255

Leu Met Lys Lys Glu Ile Ser Arg Leu Asn Arg Gln Leu Glu Glu Lys
260 265 270

Ile Ser Asp Cys Ala Glu Ala Asn Gln Glu Leu Thr Ala Met Arg Met
275 280 285

Ser Arg Asp Thr Ala Leu Glu Arg Val Gln Met Leu Glu Gln Gln Ile
290 295 300

Leu Ala Tyr Lys Asp Asp Phe Lys Ser Glu Arg Ala Asp Arg Glu Arg
305 310 315 320

Ala His Ser Arg Ile Gln Glu Leu Glu Glu Lys Ile Met Ser Leu Met
325 330 335

Tyr Gln Val Ser Gln Arg Gln Asp Ser Arg Glu Pro Gly Pro Cys Arg
340 345 350

Ile His Thr Gly Asn Lys Thr Ala Lys Tyr Leu Glu Met Asp Ala Leu
355 360 365

Glu His Val Thr Pro Gly Gly Trp Arg Pro Glu Ser Arg Ser Gln Gln
370 375 380

Met Glu Pro Ser Ala Glu Gly Gly His Val Cys Thr Ala Gln Arg Gly
385 390 395 400

Gln Gly Asp Leu Gln Cys Pro His Cys Leu Arg Cys Phe Ser Asp Glu
405 410 415

Gln Gly Glu Ala Phe Leu Arg His Leu Ser Glu Cys Cys Gln
420 425 430

<210> 7
<211> 410
<212> PRT
<213> Mus musculus

<400> 7

Leu Cys Gly Leu Tyr His Glu Ala Gly Gln Gln Leu Gln Arg Leu Lys
1 5 10 15

Asp Gln Leu Ala Ala Arg Asp Ala Leu Ile Ala Ser Leu Arg Thr Arg
20 25 30

Leu Ala Ala Leu Glu Gly His Thr Ala Pro Ser Leu Val Asp Ala Leu
35 40 45

Leu Asp Gln Val Glu Arg Phe Arg Glu Gln Leu Arg Arg Gln Glu Glu
50 55 60

Gly Ala Ser Glu Thr Gln Leu Arg Gln Glu Val Glu Arg Leu Thr Glu
65 70 75 80

Arg Leu Glu Glu Lys Glu Arg Glu Met Gln Gln Leu Met Ser Gln Pro
85 90 95

Gln His Glu Gln Glu Lys Glu Val Val Leu Leu Arg Arg Ser Val Ala
100 105 110

Glu Lys Glu Lys Ala Arg Ala Ala Ser Asp Val Leu Cys Arg Ser Leu
115 120 125

Ala Asp Glu Thr His Gln Leu Arg Arg Thr Leu Ala Ala Thr Ala His
130 135 140

Met Cys Gln His Leu Ala Lys Cys Leu Asp Glu Arg Gln Cys Ala Gln
145 150 155 160

Gly Asp Ala Gly Glu Lys Ser Pro Ala Glu Leu Glu Gln Thr Ser Ser
165 170 175

Asp Ala Ser Gly Gln Ser Val Ile Lys Lys Leu Gln Glu Glu Asn Arg
180 185 190

Leu Leu Lys Gln Lys Val Thr His Val Glu Asp Leu Asn Ala Lys Trp
195 200 205

Gln Arg Tyr Asp Ala Ser Arg Asp Glu Tyr Val Lys Gly Leu His Ala
210 215 220

Gln Leu Lys Arg Arg Gln Val Pro Leu Glu Pro Glu Leu Met Lys Lys
225 230 235 240

Glu Ile Ser Arg Leu Asn Arg Gln Leu Glu Glu Lys Ile Ser Asp Cys
245 250 255

Ala Glu Ala Asn Gln Glu Leu Thr Ala Met Arg Met Ser Arg Asp Thr
260 265 270

Ala Leu Glu Arg Val Gln Met Leu Glu Gln Gln Ile Leu Ala Tyr Lys
275 280 285

Asp Asp Phe Lys Ser Glu Arg Ala Asp Arg Glu Arg Ala His Ser Arg
290 295 300

Ile Gln Glu Leu Glu Glu Lys Ile Met Ser Leu Met Tyr Gln Val Ser
305 310 315 320

Gln Arg Gln Asp Ser Arg Glu Pro Gly Pro Cys Arg Ile His Thr Gly
325 330 335

Asn Lys Thr Ala Lys Tyr Leu Glu Met Asp Ala Leu Glu His Val Thr
340 345 350

Pro Gly Gly Trp Arg Pro Glu Ser Arg Ser Gln Gln Met Glu Pro Ser
355 360 365

Ala Glu Gly Gly His Val Cys Thr Ala Gln Arg Gly Gln Gly Asp Leu
370 375 380

Gln Cys Pro His Cys Leu Arg Cys Phe Ser Asp Glu Gln Gly Glu Ala
385 390 395 400

Phe Leu Arg His Leu Ser Glu Cys Cys Gln
405 410

<210> 8

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: consensus amino acid sequence
1

<220>

<221> misc_feature

<222> (1)..(19)

<223> Xaa can be any amino acid

<400> 8

Glu Xaa Xaa Xaa Lys Glu Ile Xaa Arg Leu Asn Xaa Xaa Leu Glu Glu
1 5 10 15

Xaa Xaa Ser

<210> 9
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: consensus amino acid sequence
2

<220>
<221> misc_feature
<222> (1)..(21)
<223> Xaa can be any amino acid

<400> 9

Leu Xaa Gln Gln Xaa Xaa Xaa Xaa Xaa Xaa Asp Phe Xaa Xaa Glu Arg
1 5 10 15

Xaa Asp Arg Glu Arg
20

<210> 10
<211> 228
<212> PRT
<213> Mus musculus

<400> 10

Arg Gln Arg Glu Tyr Gln Glu Lys Glu Ile Gln Arg Leu Asn Lys Ala
1 5 10 15

Leu Glu Glu Ala Leu Ser Ile Gln Ala Ser Pro Ser Ser Pro Pro Ala
20 25 30

Ala Phe Gly Ser Pro Glu Gly Val Gly Gly His Leu Arg Lys Gln Glu
35 40 45

Leu Val Thr Gln Asn Glu Leu Leu Lys Gln Gln Val Lys Ile Phe Glu
50 55 60

Glu Asp Phe Gln Arg Glu Arg Ser Asp Arg Glu Arg Met Asn Glu Glu
65 70 75 80

Lys Glu Glu Leu Lys Lys Gln Val Glu Lys Leu Gln Ala Gln Val Thr
85 90 95

Leu Thr Asn Ala Gln Leu Lys Thr Leu Lys Glu Glu Glu Lys Ala Lys
100 105 110

Glu Ala Leu Lys Gln Gln Lys Arg Lys Ala Lys Ala Ser Gly Glu Arg
115 120 125

Tyr His Met Glu Pro His Pro Glu His Val Cys Gly Ala Tyr Pro Tyr
130 135 140

Ala Tyr Pro Pro Met Pro Ala Met Val Pro His His Ala Tyr Lys Asp
145 150 155 160

Trp Ser Gln Ile Arg Tyr Pro Pro Pro Pro Val Pro Met Glu His Pro
165 170 175

Pro Pro His Pro Asn Ser Arg Leu Phe His Leu Pro Glu Tyr Thr Trp
180 185 190

Arg Pro Pro Cys Ala Gly Ile Arg Asn Gln Ser Ser Gln Val Met Asp
195 200 205

Pro Pro Pro Asp Arg Pro Ala Glu Pro Glu Ser Ala Asp Asn Asp Cys
210 215 220

Asp Gly Pro Gln
225

<210> 11
<211> 50
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 11
gaataccagg aggcgcagat ccagcggctc aataaagctt tggaggaggc 50

<210> 12
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 12
gttgctgaaa gaggacgtca aaatctttga agagg 35

<210> 13
<211> 39

<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 13
gcaggtaaaa atcttgaag agaatgccca gaggaaacg

39

<210> 14
<211> 62
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 14
gcaggtaaaa atcttgaag aggacttcca gagggAACGG agtgatgcgc aacgcattgcc

60

cg 62

<210> 15
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: mutant ABIN-MUT1

<400> 15

Glu Tyr Gln Glu Ala Gln Ile Gln Arg Leu Asn Lys Ala Leu Glu Glu
1 5 10 15

Ala Leu Ser

<210> 16
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: mutant ABIN-MUT2

<400> 16

Leu Lys Glu Glu Val Lys Ile Phe Glu Glu Asp Phe Gln Arg Glu Arg
1 5 10 15

Ser Asp Arg Glu Arg
20

<210> 17
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: mutant ABIN-MUT3

<400> 17

Leu Lys Gln Gln Val Lys Ile Phe Glu Glu Asn Ala Gln Arg Glu Arg
1 5 10 15

Ser Asp Arg Glu Arg
20

<210> 18
<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: mutant ABIN-MUT4

<400> 18

Leu Lys Gln Gln Val Lys Ile Phe Glu Glu Asp Phe Gln Arg Glu Arg
1 5 10 15

Ser Asp Ala Gln Arg

20

<210> 19

<211> 594

<212> PRT

<213> Mus musculus

<400> 19

Met Glu Ala Ser Arg Leu Arg Gln Lys Ala Glu Glu Leu Val Lys Asp
1 5 10 15

Ser Glu Leu Ser Pro Pro Thr Ser Ala Pro Ser Leu Val Ser Phe Asp
20 25 30

Asp Leu Ala Glu Leu Thr Gly Gln Asp Thr Lys Val Gln Val His Pro
35 40 45

Ala Thr Ser Thr Ala Ala Thr Thr Ala Thr Ala Thr Thr Gly Asn
50 55 60

Ser Met Glu Lys Pro Glu Pro Ala Ser Lys Ser Pro Ser Asn Gly Ala

65

70

75

80

Ser Ser Asp Phe Glu Val Val Pro Thr Glu Glu Gln Asn Ser Pro Glu
85 90 95

Thr Gly Ser His Pro Thr Asn Met Met Asp Leu Gly Pro Pro Pro Pro
100 105 110

Glu Asp Ser Asn Leu Lys Leu His Leu Gln Arg Leu Glu Thr Thr Leu
115 120 125

Ser Val Cys Ala Glu Glu Pro Asp His Ser Gln Leu Phe Thr His Leu
130 135 140

Gly Arg Met Ala Leu Glu Phe Asn Arg Leu Ala Ser Lys Val His Lys
145 150 155 160

Asn Glu Gln Arg Thr Ser Ile Leu Gln Thr Leu Cys Glu Gln Leu Arg
165 170 175

Gln Glu Asn Glu Ala Leu Lys Ala Lys Leu Asp Lys Gly Leu Glu Gln
180 185 190

Arg Asp Leu Ala Ala Glu Arg Leu Arg Glu Glu Asn Thr Glu Leu Lys
195 200 205

Lys Leu Leu Met Asn Ser Ser Cys Lys Glu Gly Leu Cys Gly Gln Pro
210 215 220

Ser Ser Pro Lys Pro Glu Gly Ala Gly Lys Lys Gly Val Ala Gly Gln

225

230

235

240

Gln Gln Ala Ser Val Met Ala Ser Lys Val Pro Glu Ala Gly Ala Phe
245 250 255

Gly Ala Ala Glu Lys Lys Val Lys Leu Leu Glu Gln Gln Arg Met Glu
260 265 270

Leu Leu Glu Val Asn Lys Gln Trp Asp Gln His Phe Arg Ser Met Lys
275 280 285

Gln Gln Tyr Glu Gln Lys Ile Thr Glu Leu Arg Gln Lys Leu Val Asp
290 295 300

Leu Gln Lys Gln Val Thr Glu Leu Glu Ala Glu Arg Glu Gln Lys Gln
305 310 315 320

Arg Asp Phe Asp Arg Lys Leu Leu Ala Lys Ser Lys Ile Glu Met
325 330 335

Glu Glu Thr Asp Lys Glu Gln Leu Thr Ala Glu Ala Lys Glu Leu Arg
340 345 350

Gln Lys Val Arg Tyr Leu Gln Asp Gln Leu Ser Pro Leu Thr Arg Gln
355 360 365

Arg Glu Tyr Gln Glu Lys Glu Ile Gln Arg Leu Asn Lys Ala Leu Glu
370 375 380

Glu Ala Leu Ser Ile Gln Ala Ser Pro Ser Ser Pro Pro Ala Ala Phe

385

390

395

400

Gly Ser Pro Glu Gly Val Gly Gly His Leu Arg Lys Gln Glu Leu Val
405 410 415

Thr Gln Asn Glu Leu Leu Lys Gln Gln Val Lys Ile Phe Glu Glu Asp
420 425 430

Phe Gln Arg Glu Arg Ser Asp Arg Glu Arg Met Asn Glu Glu Lys Glu
435 440 445

Glu Leu Lys Lys Gln Val Glu Lys Leu Gln Ala Gln Val Thr Leu Thr
450 455 460

Asn Ala Gln Leu Lys Thr Leu Lys Glu Glu Lys Ala Lys Glu Ala
465 470 475 480

Leu Lys Gln Gln Lys Arg Lys Ala Lys Ala Ser Gly Glu Arg Tyr His
485 490 495

Met Glu Pro His Pro Glu His Val Cys Gly Ala Tyr Pro Tyr Ala Tyr
500 505 510

Pro Pro Met Pro Ala Met Val Pro His His Ala Tyr Lys Asp Trp Ser
515 520 525

Gln Ile Arg Tyr Pro Pro Pro Pro Val Pro Met Glu His Pro Pro Pro
530 535 540

His Pro Asn Ser Arg Leu Phe His Leu Pro Glu Tyr Thr Trp Arg Pro

545 550 555 560

Pro Cys Ala Gly Ile Arg Asn Gln Ser Ser Gln Val Met Asp Pro Pro
565 570 575

Pro Asp Arg Pro Ala Glu Pro Glu Ser Ala Asp Asn Asp Cys Asp Gly
580 585 590

Pro Gln